CLAIMS

1. Method for determining of parameters characteristic for the optical behavior of liquid crystal cell is, in particular of the tilt angle of the liquid crystal molecules on the orientation layer at the internal boundary faces of the cell or, respectively, of the average tilt angle in a cell with a helical liquid crystal structure,

Characterized in that a measured transmission course depending on the angle of irradiation is compared with a calculated curve with variably pregivable parameters of the cell adapted to the measured course of the irradiation angle dependent transmission through the cell, wherein the at least one of the parameters depending on the layout of the cell is varied in the calculation until an optimum adaptation of the calculated curve to the measured transmission course is accomplished and wherein then the value pregiven for this adaptation is read out as the parameters to be determined of the cell, wherein in the case of thin cells also modulation effects based on multiple reflections in the liquid crystal layer are taking into consideration for the

calculation of the transmission curve in addition to birefringence effects in the liquid crystal layer of the cell.

2. Method according to claim one characterized in that initially a transmission curve modulated only by effects of birefringence in the liquid crystal layer of the cell and if required then additionally the transmission curve modulated additionally by multiple reflection effects in the liquid crystal layer of the cell is calculated and is adapted to the transmission course measured at the cell.

3. Method according to claim 1 or 2, characterized in that the edge tilt angle in case of a known thickness or additionally the thickness of the liquid crystal layer in the cell enters into the model calculation as a systematically to be changed parameter.

4. Method according to one of the preceding claims, characterized in that the indices of reflection of the liquid crystal in the cell are entered as known parameters in the model calculation of the transmission curve, and if

required the thickness and the index of refraction of the material of the orientation layers and/or of the material of the transparent electrodes on the cell glasses is entered for further, improved adaptation of the calculated curve to the measured course.

5. Method according to one of the preceding claims, characterized in that a 2x2 matrix method is employed for determining of the modulation of the transmission through the cell based alone on double refraction, however a 4x4 matrix method is employed for determining of the additional modulation of the transmission through the cell based on multiple reflections in the liquid crystal layer of the cell.

6. Method according to one of the preceding claims characterized in that the adaptation of calculation is performed numerically and iteratively.

7. Method according to one of the preceding claims characterized in that the tilt angle on the orientation layer in a non-helical liquid crystal configuration is varied for iterative model computation of the transmission

through the cell depending on the angle of incidence.

8. Method according to one of the preceding claims characterized in that the average tilt angle of a spiral liquid crystal configuration is varied for an iterative model calculation of the transmission depending on the angle of incidence.

9. Method according to one of the preceding claims characterized in that the direction of the beam reflected from the cell is evaluated for a calibration of the direction of incidence of the light onto the cell.

10. Method according to one of the preceding claims characterized in that the wavelength of the light beam falling onto the cell is varied for amplifying transmission modulations caused by interferences.

11. Method according to one of the preceding claims characterized in that a source for monochromatic light and the cell are stationary dispose on one side of lens with an opening ratio as high as possible for receiving the angle

dependent transmission course, wherein in the lens in its rear focal plane represents an intensity distribution according to the conoscopic principle, which intensity distribution shows the same angle dependent intensity modulation as a course measured according to the principle of the mechanical rotation over a diameter dispose parallel to the orientation of the optical axis of the liquid crystal after correction according to the functional dependency between the angle of incidence and the distance from the optical axis.